

## ECAT Pre General Science Mathematics Online Test

| Sr | Questions                                                                                             | Answers Choice                                                                                                                          |
|----|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 1  | The square root of $2i - 20i$ is                                                                      | A. $\pm(5 - 2i)$<br>B. $\pm(5 + 2i)$<br>C. $(5 - 2i)$<br>D. None of these                                                               |
| 2  | The value of $i^{4n+1}$                                                                               | A. 1<br>B. -1<br>C. i<br>D. $i^{2+2}$                                                                                                   |
| 3  | What is the conjugate of $-7 - 2i$ ?                                                                  | A. $-7 + 2i$<br>B. $7 + 2i$<br>C. $7 - 2i$<br>D. $\sqrt{53}$                                                                            |
| 4  | The equation $ x + 4  = x$ has solution                                                               | A. $x = -2$<br>B. $x = 2$<br>C. $x = -4$<br>D. $x = 4$                                                                                  |
| 5  | If $z_1 = \sqrt{-36}$ , $z_2 = \sqrt{-25}$ , $z_3 = \sqrt{-16}$ then                                  | A. 15<br>B. $15i$<br>C. $-15i$<br>D. -15                                                                                                |
| 6  | if $Z_1 = 1 + i$ , $Z_2 = 2 + 3i$ , then $ Z_2 - Z_1  =$                                              | A. $\sqrt{3} i$<br>B. $\sqrt{7}$<br>C. $-2 - i$<br>D. $\sqrt{5}$                                                                        |
| 7  | If $Z = (1, 2)$ , then $Z^{-1} = ?$                                                                   | A. (0.2, 0.4)<br>B. (-0.2, 0.4)<br>C. (0.2, -0.4)<br>D. (-0.2, -0.4)                                                                    |
| 8  | The value of x and y when $(x + iy)^2 = 5 - 4i$                                                       | A. $x = 2$ , $y = -1$<br>B. $x = -2$ , $y = 1$<br>C. $x = 2$ , $y = -i$<br>D. $x = 2$ , $y = 2$                                         |
| 9  | Every prime number is also                                                                            | A. Rational number<br>B. Even number<br>C. Irrational number<br>D. Multiple of two numbers                                              |
| 10 | $\sqrt{23}$ is                                                                                        | A. A rational number<br>B. A irrational number<br>C. An even integer<br>D. A factor of 36                                               |
| 11 | 6 is                                                                                                  | A. A prime integer<br>B. An irrational number<br>C. A rational number<br>D. An odd integer                                              |
| 12 | 0 (zero) is                                                                                           | A. An irrational number<br>B. A rational number<br>C. A negative integer<br>D. A positive number                                        |
| 13 | The second degree equation of the form $Ax^2 + By^2 + Gx + Fy + C = 0$ represent hyperbola if         | A. $A = B \neq 0$<br>B. $A \neq B$ and both are of same sign<br>C. $A \neq B$ both are of opposite sign<br>D. Either $A = 0$ or $B = 0$ |
| 14 | If the distance of any point on the curve from any of the two lines approaches zero then it is called | A. Axis<br>B. Directrices<br>C. Asymptotes<br>D. None                                                                                   |
| 15 | The ellipse and hyperbola are called                                                                  | A. Concentric conics<br>B. Central conics<br>C. Both a & b<br>D. None                                                                   |

|    |                                                                                                                       |                                                                                                      |
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| 16 | The directrix of $y^2 = -4ax$ is                                                                                      | A. $y = -a$<br>B. $y = a$<br>C. $x = a$<br>D. $x = -a$                                               |
| 17 | A line joining two distinct points on a parabola is called                                                            | A. Axis<br>B. Directrix<br>C. Chord<br>D. Tangent                                                    |
| 18 | For the parabola the line through focus and perpendicular to the directrix is called                                  | A. Tangent<br>B. Vertex<br>C. Axis<br>D. None                                                        |
| 19 | The eccentricity $e$ of an ellipse is always                                                                          | A. Rational<br>B. Real<br>C. Irrational<br>D. Integer                                                |
| 20 | The line $y = 4x + c$ touches the hyperbola $x^2 - y^2 = 1$ if and only if                                            | A. $c = \pm\sqrt{2}$<br>B. $c = 0$<br>C. $c = \pm\sqrt{17}$<br>D. $c = \pm\sqrt{15}$                 |
| 21 | If $e, e'$ be the eccentricities of two conics $S=0$ and $S'=0$ and if $e^2 + e'^2 = 3$ then both $S$ and $S'$ can be | A. Hyperbola<br>B. Parabolas<br>C. Ellipses<br>D. None of these                                      |
| 22 | The line $2x + \sqrt{6}y = 2$ is a tangent to the curve $x^2 - 2y^2 = 4$ The point of contact is                      | A. $(\sqrt{6}, 1)$<br>B. $(2, 3)$<br>C. $(7, -2\sqrt{6})$<br>D. $(4, -\sqrt{6})$                     |
| 23 | If eccentricity of ellipse becomes zero then it takes the form of                                                     | A. A parabola<br>B. A circle<br>C. A straight line<br>D. None of these                               |
| 24 | The sum of the focal distance from any point on the ellipse $9x^2 + 16y^2 = 144$ is                                   | A. 32<br>B. 16<br>C. 18<br>D. 8                                                                      |
| 25 | The centre of the conic $x^2 + 16x + 4y^2 - 16y + 76 = 0$ is                                                          | A. $(0, 10)$<br>B. $(-8, 4)$<br>C. $(-8, -2)$<br>D. $(1, 1)$                                         |
| 26 | Intersection of two parabolas                                                                                         | A. parabola<br>B. Two points<br>C. Four points<br>D. Hyperbola                                       |
| 27 | If either $A = 0$ or $B = 0$ , then $Ax^2 + By^2 + 2Gx + 2Fy + c = 0$ represents a                                    | A. Circle<br>B. Hyperbola<br>C. Ellipse<br>D. Parabola                                               |
| 28 | $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ may represent an ellipse if                                                  | A. $h^2 - ab < 0$<br>B. $h^2 - ab \neq 0$<br>C. $h^2 - ab = 0$<br>D. $h^2 - ab > 0$                  |
| 29 | To remove the term involving $xy$ , from $7x^2 - 6\sqrt{3}xy + 13y^2 - 16 = 0$ the angle of rotation is               | A. $\theta = 30^\circ$<br>B. $\theta = 45^\circ$<br>C. $\theta = 60^\circ$<br>D. $\theta = 75^\circ$ |
| 30 | The second degree equation $2x^2 - xy + 5x - 2y + 2 = 0$ represents                                                   | A. Circle<br>B. Hyperbola<br>C. Ellipse<br>D. Pair of straight lines                                 |